HHS Public Access

Author manuscript

J Sch Health. Author manuscript; available in PMC 2015 September 10.

Published in final edited form as:

J Sch Health. 2013 October ; 83(10): 734–742. doi:10.1111/josh.12088.

Trends in Professional Development for and Collaboration by Health Education Teachers—41 States, 2000–2010

Nancy D. Brener, PhD[a], **Tim McManus, MS**[b], **Howell Wechsler, EdD, MPH**[c], and **Laura Kann, PhD**[d]

[a]Supervisory Health Scientist, (nbrener@cdc.gov), Division of Adolescent and School Health, Centers for Disease Control and Prevention, Mailstop K-29, 4770 Buford Hwy NE, Atlanta, GA30341

[b]Survey Statistician, (tsm9@cdc.gov), Division of Adolescent and School Health, Centers for Disease Control and Prevention, Mailstop K-29, 4770 Buford Hwy NE, Atlanta, GA30341

[c]Chief Executive Officer, (howell.wechsler@healthiergeneration.org), Alliance for a Healthier Generation, formerly Director, Division of Adolescent and School Health, Centers for Disease Control and Prevention

[d]Chief, School-Based Surveillance Branch, (lkk1@cdc.gov), Division of Adolescent and School Health, Centers for Disease Control and Prevention, Mailstop K-29, 4770 Buford Hwy NE, Atlanta, GA30341

Abstract

BACKGROUND—Professional development (PD) and collaboration help ensure the quality of school health education. The purpose of this study was to examine trends in the percentage of lead health education teachers (LHETs) receiving PD on health topics and collaborating with other school staff on health education activities.

METHODS—This study analyzed representative data from 41 states participating in School Health Profiles surveys between 2000 and 2010. Logistic regression examined linear trends in the percentage of LHETs who received PD on 12 topics and who collaborated on health education activities.

RESULTS—Significant increases in the percentage of LHETs receiving PD on nutrition and physical activity and significant decreases in the percentage of LHETs receiving PD on alcohol- and other drug-use prevention and human immunodeficiency virus prevention were seen. Significant increases in the percentage of LHETs who collaborated with physical education staff and nutrition services staff were seen in 29 and 39 states, respectively.

Address correspondence to: Nancy D. Brener, Supervisory Health Scientist, (nbrener@cdc.gov), Division of Adolescent and School Health, Centers for Disease Control and Prevention, Mailstop K-29, 4770 Buford Hwy NE, Atlanta, GA30341.

Disclaimer: The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Human Subjects Approval Statement

As a surveillance system, Profiles has been determined to be exempt from review by an institutional review board. Some individual states and school districts, however, have chosen to submit their Profiles surveys for review; approval has been granted in all of these cases.

CONCLUSIONS—Although 10-year increases in PD and collaboration in the areas of nutrition and physical activity are encouraging, PD and collaboration in other topic areas still need improvement. These results will help states target more resources toward PD and collaboration in areas where they have been decreasing.

Keywords

health educators; professional preparation of school health personnel; school health instruction

School health education can be an effective means of reducing the prevalence of health-risk behaviors among students.[1–3] To be most effective, however, it is critical that those who teach health education have up-to-date knowledge of health topics as well as skills for reaching students. Professional development (PD) is one way teachers can obtain such expertise. For example, a national study of mathematics and science teachers showed that PD can increase teachers' knowledge and skills.[4] Professional development can also increase educators' confidence in teaching and provides opportunities for them to learn innovative teaching techniques and exchange ideas with colleagues.[3] The Institute of Medicine's Committee on Comprehensive School Health Programs in Grades K-12 recommended that health education teachers should be expected to participate in ongoing, discipline-specific in-service programs to stay abreast of new developments in their field.[3] Further, a national study[5] found that teachers who had received recent PD on health topics taught more health topics than did teachers without recent PD.

Another way to increase the effectiveness of health education is to ensure that it is not taught in isolation. That is, when health education is coordinated with other components of school health, it is likely to have greater effectiveness.[2,6] For example, classroom instruction on healthy eating will be better reinforced if students are given the opportunity to choose healthy foods and beverages in the cafeteria and in vending machines.[7] Collaboration among different components of school health, such as health education, physical education, and nutrition services, is a key part of coordinated school health and can help schools prevent unhealthy behaviors.[8]

Although the importance of PD and collaboration among different components of school health is reflected in numerous guidelines and other publications,[9–12] to our knowledge, only one study—the national School Health Policies and Practices Study (SHPPS)—has examined the extent to which schools have these in place and how they have changed over time. According to SHPPS,[1] between 2000 and 2006, the percentage of states and school districts that provided funding for PD or offered PD for health education teachers on injury prevention and safety, nutrition and dietary behavior, physical activity and fitness, and suicide prevention increased. However, the percentage of states that provided funding for PD or offered PD for health education teachers on human immunodeficiency virus (HIV) prevention and other sexually transmitted disease (STD) prevention decreased during this time. Further, the percentage of districts that provided funding for PD or offered PD for health education teachers on emotional and mental health, other STD prevention, and violence prevention increased. That study also showed an increase between 2000 and 2006 in the percentage of required health education classes with a teacher who received PD on

injury prevention and safety during the 2 years before the study. As for collaboration, SHPPS detected an increase in collaboration between both state- and district-level health education and nutrition services staff between 2000 and 2006. In addition, the study found a decrease in collaboration between state-level health education and health services staff during the same time period.

Although the national data SHPPS provides is informative, its usefulness is limited by 2 factors. First, data are only collected every 6 years, and the most current data available are from 2006. Second, because SHPPS is a national study, it does not allow for state-by-state comparisons. The purpose of this study, therefore, is to use the School Health Profiles (Profiles), a state-based surveillance system developed by the Centers for Disease Control and Prevention (CDC), to examine trends from 2000 to 2010 across states in PD for health education teachers and collaboration by health education staff.

METHODS

Profiles is a system of surveys assessing school health policies and practices in states, territories, large urban school districts, and tribal governments. Education and health agencies have conducted these surveys biennially since 1994 with funding and technical assistance from CDC. These surveys use standard questionnaires and standardized methods for sampling, data collection procedures, and data analysis.[13]

Participants

Although Profiles data are available from states, large urban school districts, territories, and tribal governments, data for this article were limited to those obtained from state surveys conducted in 2000, 2002, 2004, 2006, 2008, and 2010. Each survey year, participating states select systematic, equal-probability samples of their secondary schools or all public secondary schools within their jurisdiction. For the purposes of Profiles, secondary schools are defined as middle schools, junior high schools, and high schools with any of grades 6 through 12. Respondents are principals and lead health education teachers (LHETs) in the selected schools. The LHET is the person at the school the principal designates to be most knowledgeable about health education.

Instruments

Profiles uses separate questionnaires for the principal and the LHET. The data for this study were obtained from the LHET questionnaire, which contains questions assessing school health education requirements and content, collaboration, and the PD and professional preparation of the LHET. Specifically, to assess PD in each of the 6 survey years, LHETs were asked the following question about 12 topics: “During the past two years, did you receive PD (eg, workshops, conferences, continuing education, or any other kind of in-service) on each of the following topics?” (Table 1 lists the topics). To assess collaboration, each survey year LHETs were asked: “During this school year, have any health education staff worked with each of the following groups on health education activities? A) Physical education staff, B) Health services staff (eg, nurses), C) Mental health and social services

staff (eg, psychologists, counselors, and social workers), and D) Nutrition and food service staff."

Procedures

Self-administered questionnaires are sent to the principal and LHET at each selected school and returned to the agency conducting the survey. Participation in Profiles is confidential and voluntary. Follow-up telephone calls, e-mails, and written reminders are used to encourage participation. Data are included in this article only if the state provided appropriate documentation of methods and obtained a school response rate ≥70%. For states that use a sample-based method (N=36 in 2010), results are weighted to reflect the likelihood of schools being selected and to adjust for differing patterns of nonresponse. For states that conduct a census (N=13 in 2010), results are weighted to adjust for differing patterns of nonresponse.

Data Analysis

Analyses used data from 41 states that provided weighted Profiles data in 2010 and at least 2 other years during 2000–2008 (see Tables for a list of states). For each of these states, temporal changes during 2000–2010 were analyzed using logistic regression analyses that assessed significant ($p < .05$) linear time effects. In addition, the median percentage of schools across states was also calculated for each variable. Statistical software used for all analyses accounted for the sample design and unequal weights.

In 2010, across states, sample sizes of the LHET surveys ranged from 65 to 677 (median: 257) and response rates ranged from 70% to 86% (median: 73%). These sample sizes and response rates are similar to those obtained in previous survey years. Sample sizes and response rates by state have been published previously.[14–18]

RESULTS

Table 1 shows the 2010 percentage of schools in each state in which the LHET received PD on each of 12 topics during the 2 years preceding the survey. Significant linear increases during 2000–2010 are indicated with a plus sign (+) and significant linear decreases are indicated with a minus sign (−). Table 1 also shows the minimum and maximum values for each variable in the row labeled "range." The range can be calculated as the difference between the state with the lowest percentage and the state with the highest percentage. The percentage of schools in each state in which the LHET received PD varied widely across states for all topics. For example, the prevalence of PD on human sexuality ranged from 9.9% in Alaska to 64.4% in Utah. Even the narrowest ranges, such as those for PD on alcohol- or other drug-use prevention, nutrition and dietary behavior, and tobacco-use prevention all were more than 30 percentage points. Across states, the median percentages for PD on each topic also varied widely by topic. Medians were lowest for pregnancy prevention, suicide prevention, and human sexuality, and highest for physical activity and fitness and violence prevention.

State-by-state comparisons of the overall increases and decreases in the percentage of schools in which the LHET received PD reveal a variety of patterns. Although many states

showed increases between 2000 and 2010 for some topics along with decreases for other topics during the same time period, some states showed a large number of increases without corresponding decreases, and others showed a large number of decreases without corresponding increases. For example, in New York and North Carolina, the percentage of schools in which the LHET received PD increased for 9 of the 12 topics examined, yet the percentage did not decrease for the other 3 topics. In Arizona, the percentage of schools in which the LHET received PD decreased for 10 of the 12 topics, but the percentage did not increase for the other 2 topics.

A summary of the linear time effects in the percentage of schools in which the LHET received PD for each topic is shown in Table 2. Overall, the number of significant linear increases (174) was greater than the number of significant linear decreases (86). Nutrition and dietary behavior and physical activity and fitness were the 2 PD topics for which the most states showed increases during 2000–2010 (31 and 25, respectively). Conversely, HIV prevention and alcohol- or other drug-use prevention were the 2 topics for which the most states showed decreases during the same time period (21 and 18, respectively).

In Table 3, the percentage of schools in which health education staff worked on health education activities with each type of other school staff during the current school year is shown for each survey year included in the analysis, along with plus and minus signs indicating significant linear increases and decreases, respectively. Overall, the significant linear increases (96) far outnumber the significant linear decreases (4). All but 2 states (Hawaii and South Dakota) showed increases in the percentage of schools in which health education staff worked with at least one other type of school staff. Three states (Arizona, Connecticut, and Massachusetts) showed decreases in collaboration with at least one type of school staff, but in each of these states, an increase in collaboration with at least one other type of school staff occurred during the same time period. Six states showed increases in collaboration with all 4 types of school staff, 10 showed increases in collaboration with 3 of the 4 types and no decreases, and the remaining states showed increases in collaboration with 1 or 2 types of school staff. These increases, however, were not distributed evenly across the types of school staff. That is, 39 states showed increases in the percentage of schools in which health education staff worked on health education activities with nutrition services staff and 29 showed increases in the percentage in which health education staff worked with physical education staff, whereas the number of states with increases was far lower for working with health services staff (12) and mental health and social services staff (16).

Although many states showed increases in the percentage of schools in which health education staff worked with nutrition services staff, a comparison of the 2010 median percentages for each type of school staff reveals that the median was lowest for nutrition services staff (41.0%). In addition, although most states showed increases between 2000 and 2010 in the percentage of schools in which health education staff worked with each type of school staff, the 2010 percentages vary widely across states. For example, the percentage of schools in which health education staff worked with health services staff ranged from 41.7% in Michigan to 90.5% in Delaware. Although this was the widest range, all ranges exceeded 37 percentage points.

DISCUSSION

This study found wide variation across states in 2010 in the percentage of schools in which the LHET received PD and in the percentage of schools in which health education staff collaborated with other types of school staff. The results likely reflect differences in states' priorities and resources. For example, for multiple topics, Alaska, Iowa, and South Dakota had the lowest percentage of schools in which the LHET received PD, suggesting that in those states, PD on health education is a relatively low priority or that resources for PD are scarce. Conversely, the prevalence of PD was highest in Hawaii, Oklahoma, and Tennessee for multiple topics, suggesting that PD for health education teachers is a relatively high priority in those states and those states have adequate resources for PD. The percentage of schools in which health education staff worked with nutrition services staff was lowest in Hawaii, indicating a relatively low priority and potentially scarce resources for that type of collaboration in that state, in contrast to its high priority on and sufficient resources for PD in the areas of HIV, STD, and pregnancy prevention. Delaware, on the other hand, had the highest prevalence of collaboration in both physical education and health services, reflecting a relatively high priority and sufficient resources for collaboration in that state.

Trends in PD between 2000 and 2010 were very different from trends in collaboration during the same time period. That is, all but 2 states included in this analysis showed increases in collaboration, whereas trends in PD varied widely across states. Many states showed increases for some PD topics and decreases for other topics; some states showed increases in multiple topics but few decreases, and other states showed decreases in multiple topics but few increases. These results indicate that some states had an increase in their PD activities overall during the past decade, whereas others had a decrease overall, which is likely to be a reflection of priorities and availability of resources in these states during this time period. On the other hand, when states had increases in PD for some topics and decreases for other topics, this reflects changes in priorities pertaining to specific topics, rather than priorities for PD in general.

Although patterns in PD for specific topics are not apparent when examining trends over time by state, when the results are summarized by topic, it becomes clear that most of the increases in PD between 2000 and 2010 are in the areas of nutrition and physical activity. This is not surprising given the increased emphasis on obesity prevention during the past decade, which included a federal requirement for school districts to establish local wellness policies.[19] This same analysis also revealed that most of the decreases in PD during this time period are in the areas of HIV prevention and alcohol- and other drug-use prevention. The decrease in PD on alcohol- and other drug-use prevention might be explained, at least in part, by a decrease in the Department of Education's funding for Safe and Drug-Free Schools during the past decade.[20] Fortunately, however, these topics are still being taught to secondary school students. In 2010, across states, a median of 95.7% of schools tried to increase student knowledge on alcohol- and other drug-use prevention in a required course, and a median of 89.9% of schools tried to increase student knowledge on HIV prevention.[13] However, because PD on these topics has decreased over time, teachers' knowledge and skills in teaching the topics might not be as current as is needed to ensure the effectiveness of the instruction. In addition, given the sometimes controversial nature of HIV prevention,

insufficient PD in these areas is especially problematic, as teachers might be less likely to cover all aspects of HIV prevention. Indeed, a recent analysis of Profiles data showed that, across states, the percentage of schools in which teachers taught specific topics as part of HIV, other STD, and pregnancy prevention education failed to increase during 2008–2010.[21]

Although this study found increases in the percentage of schools in which health education staff worked with all other types of school health staff, these increases were especially prevalent for nutrition services staff and physical education staff. Again, this finding is in line with the increased emphasis on obesity prevention during the past decade and the establishment of local wellness policies.[19] This finding might also be related to increased dissemination of the coordinated school health model during the past decade. It is important to note, however, that across states in 2010, the median percentage of schools in which health education staff worked with nutrition services staff is lower than the median percentages of schools in which health education staff worked with each of the other types of staff. Clearly, there is room for improvement in the extent to which health education staff members are collaborating with nutrition services staff.

Limitations

This study has several limitations. First, although every state included in the analysis had weighted data from 2010 and at least 2 other survey years during 2000 and 2008, not every state had data from all of the survey years, so the trend analyses are not entirely comparable. That is, some states have data spanning the entire decade, whereas for other states the data might only describe trends between 2006 and 2010. Second, because of the large number of states and variables in this study, for simplicity, the trend analyses were restricted to linear trends only. The inclusion of quadratic or higher order trends might have revealed more complex patterns. For example, if a state's linear and quadratic trends were both statistically significant, this might indicate not only an overall increase over time but also a leveling off, such as when the increase occurred early in the decade and then did not change. Finally, the data are limited by the questions used to assess the information. Although the results provide information about whether LHETs received PD on certain topics during the 2 years before the survey, they tell us nothing about the quality of that PD. It could range from a 1-hour information session to a multiday, interactive training. In addition, the questionnaire asks only about the PD of the LHET and does not reflect the PD of other health education teachers in the school who may have received less PD. Similarly, asking whether health education staff worked on health education activities with other school staff measures only a small portion of what could be considered collaboration. Future studies could examine both PD and collaboration in greater depth.

IMPLICATIONS FOR SCHOOL HEALTH

Overall, this study found increases in both PD and collaboration in the areas of nutrition and physical activity. This is an encouraging finding, but further improvements are needed. To ensure the quality of school health education, increased PD is needed for all topics, not just those related to obesity prevention. In addition, although collaboration with nutrition services staff has increased during the past decade, it still lags behind collaboration with

other types of school staff. Collaboration between health education and nutrition services staff is critical to reinforce messages about healthy eating that are taught in most classrooms, yet in 2010, across states, a median of only 18.7% of schools provided opportunities for students to visit the cafeteria to learn about food safety, food preparation, or other nutrition-related topics.[13] This is clearly a missed opportunity. Other ideas for collaboration might include having nutrition services staff teach about good nutrition, healthy eating habits, or food safety as part of a health education class, or provide opportunities for students to taste-test different recipes and learn about their nutritional value.

To help ensure that the results of this study, as well as other Profiles results, are used to help improve school health, it is critical that states disseminate their Profiles results in multiple ways to appropriate audiences. For example, states have created fact sheets, reports, and presentations using Profiles data, and have posted results on their websites.[22] In addition, states have analyzed Profiles data to inform PD. In Delaware, the state education agency used Profiles and other data sources to identify priority areas for PD around sexual health curricula and then targeted their efforts to those areas. In Michigan, a statewide planning group used Profiles data to identify the need for PD on mental health, which helped drive statewide efforts to provide more training in this area through partnerships with institutes of higher education.[22] States should continue to use Profiles data to support improvements to their school health programs.

Conclusions

This study demonstrates the value of Profiles in providing state-level data related to health education. The results showed wide variation across states in both PD and collaboration. States that have a relatively low percentage of schools or decreases in the percentage of schools in which teachers received PD and collaborated with others can examine the reasons why they might be lagging behind other states. These reasons might include priorities, resources, or other factors. Individual states can then use this information to help target more resources toward or increase the priority level of PD and collaboration in areas of relative weakness. These efforts will ultimately help improve school health education.

REFERENCES

1. Kann L, Telljohann S, Wooley SF. Health education: results from the School Health Policies and Programs Study 2006. J Sch Health. 2007; 77(8):408–434. [PubMed: 17908101]
2. Greenberg MT, Weissberg RP, O'Brien MU, et al. Enhancing school-based prevention and youth development through coordinated social, emotional, and academic learning. Am Psychol. 2003; 58(6–7):466–474. [PubMed: 12971193]
3. Institute of Medicine. Schools and Health: Our Nation's Investment. Washington, DC: National Academy Press; 1997.
4. Garet MS, Porter AC, Desimone L, Birman BF, Yoon KS. What makes professional development effective? Results from a national sample of teachers. Am Educ Res J. 2001; 38(4):915–945.
5. Jones SE, Brener ND, McManus T. The relationship between staff development and health instruction in schools in the United States. Am J Health Educ. 2004; 35(1):2–10.
6. Osher, D.; Dwyer, K.; Jackson, S. Safe, Supportive, and Successful Schools, Step by Step. Rockville, MD: US Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services; 2002.

7. Food and Nutrition Service, US Department of Agriculture, Centers for Disease Control and Prevention, US Department of Health and Human Services, and US Department of Education. Making It Happen: School Nutrition Success Stories. Alexandria, VA: US Department of Agriculture; 2005.
8. Centers for Disease Control and Prevention. [Accessed May 3, 2012] The case for coordinated school health. Available at: http://www.cdc.gov/healthyyouth/cshp/case.htm.
9. Centers for Disease Control and Prevention. [Accessed May 21, 2012] School Health Index: a self-assessment and planning guide. 2005. Available at: http://www.cdc.gov/healthyyouth/shi/index.htm.
10. Centers for Disease Control and Prevention. School health guidelines to promote healthy eating and physical activity. MMWR Morb Mortal Wkly Rep. 2001; 60(RR-5):1–76.
11. Centers for Disease Control and Prevention. School health guidelines to prevent unintentional injuries and violence. MMWR Morb Mortal Wkly Rep. 2001; 50(RR-22):1–74. [PubMed: 11215787]
12. Centers for Disease Control and Prevention. School health guidelines to prevent tobacco use. MMWR Morb Mortal Wkly Rep. 1994; 43(RR-2):1–24.
13. Brener, ND.; Demissie, Z.; Foti, K., et al. School Health Profiles 2010: Characteristics of Health Programs Among Secondary Schools. Atlanta, GA: Centers for Disease Control and Prevention; 2011.
14. Storch, P.; Grunbaum, JA.; Kann, L.; Williams, B.; Kinchen, S.; Kolbe, L. School Health Education Profiles: Surveillance for Characteristics of Health Education Among Secondary Schools (Profiles 2000). Atlanta, GA: Centers for Disease Control and Prevention; 2003.
15. Whalen, LG.; Grunbaum, JA.; Kann, L.; Hawkins, J.; McManus, T.; Davis, KS. School Health Profiles: Surveillance for Characteristics of Health Programs Among Secondary Schools (Profiles 2002). Atlanta, GA: Centers for Disease Control and Prevention; 2004.
16. Grunbaum, JA.; Di Pietra, J.; McManus, T.; Hawkins, J.; Kann, L. School Health Profiles: Characteristics of Health Programs Among Secondary Schools (Profiles 2004). Atlanta, GA: Centers for Disease Control and Prevention; 2005.
17. Balaji, AB.; Brener, ND.; McManus, T.; Hawkins, J.; Kann, L.; Speicher, N. School Health Profiles: Characteristics of Health Programs Among Secondary Schools 2006. Atlanta, GA: Centers for Disease Control and Prevention; 2008.
18. Brener, ND.; McManus, T.; Foti, K., et al. School Health Profiles 2008: Characteristics of Health Programs Among Secondary Schools. Atlanta, GA: Centers for Disease Control and Prevention; 2009.
19. Child Nutrition and WIC Reauthorization Act of 2004. Public Law No. 108–265 Stat 729, § 204.
20. [Accessed May 21, 2012] Office of Safe- and Drug-Free Schools. Available at: http://www2.ed.gov/about/offices/list/osdfs/programs.html.
21. Kann L, Brener N, McManus T, Wechsler H. HIV, other STD, and pregnancy prevention education in public secondary schools—45 states, 2008–2010. MMWR Morb Mortal Wkly Rep. 2012; 61(13):222–228. [PubMed: 22475850]
22. Foti K, Balaji A, Shanklin S. Uses of Youth Risk Behavior Survey and School Health Profiles data: applications for improving adolescent and school health. J Sch Health. 2011; 81(6):345–354. [PubMed: 21592130]

Table 1

Percentage of Schools in Which the Lead Health Education Teacher Received Professional Development on 12 Topics, by Topic—41 States, 2010

State	Alcohol- or Other Drug-Use Prevention	Emotional and Mental Health	HIV Prevention	Human Sexuality	Injury Prevention and Safety	Nutrition and Dietary Behavior	Physical Activity and Fitness	Pregnancy Prevention	STD Prevention	Suicide Prevention	Tobacco-Use Prevention	Violence Prevention
Alabama	49.6	21.5−	44.3	22.9	44.2	31.9+	49.8	24.6	34.1	25.8	34.4	46.1
Alaska	30.7−	27.7	17.8−	9.9	32.3−	23.6	29.6	10.2	13.2	24.2	21.8−	36.5
Arizona	40.3−	30.8−	22.5−	15.7−	41.8−	34.0	39.7	17.0−	18.7−	21.1−	31.7−	48.5−
Arkansas	44.8	37.8+	26.5−	22.1	65.9+	42.9+	68.4+	24.2	25.0	33.5+	43.2+	58.9+
Connecticut	31.4−	27.3−	26.4−	27.1	38.3+	26.7	51.8+	19.5	23.2−	21.2	22.6	50.2−
Delaware	45.9	37.7+	53.2	54.8+	31.7	38.3	60.7	44.3	51.6+	18.0	35.6	50.0
Florida	39.0−	33.6	46.4−	37.1	47.9	40.3	53.8	33.5	40.0	30.9	36.3	69.1+
Georgia	38.1−	24.7	47.4	36.8	38.5	30.3+	48.4+	34.2	43.7	21.1	28.5	47.5
Hawaii	51.3	46.4+	66.3+	61.5+	39.1	43.7+	70.3+	58.8+	62.7+	33.7+	45.2	56.3
Idaho	59.2+	46.8+	45.9−	43.5	39.5+	39.6+	55.6+	28.4+	39.8−	38.8+	40.2	58.4
Iowa	26.5−	24.3+	33.6−	28.0	27.5−	31.6	33.3	26.2	30.6	17.1	17.3−	42.9+
Kansas	32.0−	27.3	30.0−	30.1−	40.2	40.5	55.5	23.4	27.4−	19.7	30.0	61.9+
Kentucky	34.2	30.9+	31.8	23.4+	52.5	39.9+	50.9+	23.2	26.4	25.4+	29.5	55.3
Maine	42.4	43.9+	41.6−	46.4+	41.5+	51.3+	58.2+	35.2	41.3	36.6	29.8	54.0
Massachusetts	44.9−	44.9−	37.4−	41.5−	33.8	41.4	48.2	33.9	37.5−	32.2	24.9−	63.8−
Michigan	38.5−	33.3	54.4	47.2	27.6	43.4+	48.9+	39.4+	48.1	24.8	29.7−	42.5−
Minnesota	43.4	67.5+	41.1−	42.7	45.1+	38.5+	51.0+	32.3	36.0−	40.5+	31.7−	57.5+
Mississippi	43.1−	43.0	29.3−	24.3	51.8	47.5	53.6+	27.8	29.2	43.1+	41.7	54.7
Missouri	37.9−	36.5+	28.4	23.8	49.5+	43.7+	54.8+	21.1	26.8	30.3+	30.7	58.9+
Montana	40.8	32.2	39.4−	29.8	51.2	32.6	56.4+	28.5	33.9−	38.9+	33.2−	52.6
Nebraska	28.5	24.2	20.9	19.5	36.1+	32.2+	39.1+	21.3+	21.3	24.4	19.4	44.7+
New Hampshire	58.7	59.9+	46.0	46.2	47.6+	59.0+	64.9+	36.8+	43.1	43.0	38.7	60.1
New Jersey	48.1	48.2+	42.1	50.2+	54.0+	40.9+	69.0+	35.2	41.5	64.9+	34.1	76.6+
New York	60.0+	52.1+	55.6	48.0+	49.6+	53.5+	60.8+	42.4+	47.6+	38.2+	44.6	63.5
North Carolina	43.1	35.5+	45.6	41.0+	58.8+	42.9+	72.5+	36.7+	40.7	25.1+	43.7+	63.7+
North Dakota	39.6−	33.2	31.9−	25.7	38.5+	40.7+	54.6+	17.8	27.0	31.0	33.2	51.9
Ohio	37.6	40.6+	27.8	26.6+	46.0+	42.0+	51.5+	23.4	25.8	29.7+	26.9+	53.3+

State	Alcohol- or Other Drug-Use Prevention	Emotional and Mental Health	HIV Prevention	Human Sexuality	Injury Prevention and Safety	Nutrition and Dietary Behavior	Physical Activity and Fitness	Pregnancy Prevention	STD Prevention	Suicide Prevention	Tobacco-Use Prevention	Violence Prevention
Oklahoma	58.3	50.6+	65.5−	31.0+	70.4+	45.2+	56.8+	32.7	43.4	39.4+	51.3+	76.9+
Oregon	28.1−	28.1	27.4−	28.0	37.7	25.1	31.8	19.5	23.9−	27.2	17.5−	43.7−
Pennsylvania	43.3−	34.3	37.7	31.8	43.1+	40.1	64.4+	25.3	28.8	22.6	27.9−	52.7
Rhode Island	27.5	39.9	24.6	24.7+	43.0	38.4	44.6	20.2	22.1	19.0	19.0	68.6+
South Carolina	38.1	32.2	49.5	48.7+	51.4	38.6+	69.3+	40.8+	46.4+	22.5+	33.4	60.3+
South Dakota	31.1−	25.8	15.3	15.6	26.6	24.6−	44.9+	10.5	16.2	23.5	25.7	50.3
Tennessee	48.9	52.8+	44.2−	28.2	65.6+	49.9+	72.4+	26.3	31.5−	73.1+	40.9	80.4+
Texas	47.1	36.2+	39.5	36.1	59.3	42.5+	65.2+	43.4+	40.9+	27.4+	35.5	57.8+
Utah	59.0−	47.4−	52.2−	64.4	38.4	42.7−	53.4+	40.2−	53.0−	30.4−	44.0−	49.9−
Vermont	53.4−	57.7	31.9	33.0	38.4	46.0+	58.5+	21.2	28.3−	33.9	31.2−	52.0
Virginia	42.6	29.7	34.0−	30.7+	44.3	38.6+	75.9+	26.0+	29.9	32.5+	32.4	64.0+
Washington	34.7	29.9	52.1	41.0+	41.9	37.2+	47.0+	34.8+	44.5+	34.7	28.4	47.3
West Virginia	36.0−	26.5	28.8−	23.7	39.0	40.4	56.1+	21.3	24.7	18.5	40.7−	51.9
Wisconsin	51.7	46.9+	30.0−	34.4+	41.1	45.4+	55.2+	27.7	31.1+	47.9+	34.5	50.7+
Range	26.5–60.0	21.5–67.5	15.3–66.3	9.9–64.4	26.6–70.4	23.6–59.0	29.6–75.9	10.2–58.8	13.2–62.7	17.1–73.1	17.3–51.3	36.5–80.4
Median	42.4	35.5	37.7	31.0	41.9	40.4	54.8	27.7	31.5	30.3	32.4	54.0

HIV, human immunodeficiency virus; STD, sexually transmitted disease; +, significant linear increase, 2000–2010; −, significant linear decrease, 2000–2010.

Table 2

Summary of Linear Time Effects in the Percentage of Schools in Which the Lead Health Education Teacher Received Professional Development, by Topic—41 States, 2000–2010

Topic	Number of States With Significant Linear Increases	Number of States With Significant Linear Decreases
Alcohol- or other drug-use prevention	2	18
Emotional and mental health	17	6
HIV prevention	1	21
Human sexuality	14	3
Injury prevention and safety	16	3
Nutrition and dietary behavior	25	2
Physical activity and fitness	31	0
Pregnancy prevention	11	2
STD prevention	7	11
Suicide prevention	19	2
Tobacco-use prevention	14	12
Violence prevention	17	6
Total	174	86

HIV, human immunodeficiency virus; STD, sexually transmitted disease.

Table 3

Percentage of Schools in Which Health Education Staff Worked on Health Education Activities With Other School Staff During the Current School Year —41 States, 2000–2010

	Physical Education							Health Services						
State	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**Trend**	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**Trend**
Alabama	69.1	74.7	—	74.1	79.1	81.3	+	68.2	74.0	—	78.3	77.2	74.9	+
Alaska	47.6	56.2	51.1	54.6	59.4	56.2		45.3	50.1	48.7	42.7	40.9	48.2	
Arizona	—	54.9	55.1	56.4	57.7	62.9	+	—	57.6	50.6	47.1	48.8	49.8	−
Arkansas	64.8	—	79.6	79.9	86.4	91.3	+	61.5	—	72.1	67.7	78.7	83.4	+
Connecticut	—	69.0	70.3	76.5	81.0	79.2	+	—	70.4	70.9	73.0	68.0	60.8	−
Delaware	90.1	91.2	91.7	91.1	89.1	95.2		82.7	83.4	83.5	86.3	71.9	90.5	
Florida	—	—	—	56.4	75.2	74.9	+	—	—	—	55.2	59.7	57.1	
Georgia	—	83.0	—	90.9	—	87.5		—	64.1	—	64.4	—	67.7	
Hawaii	68.6	70.8	—	79.9	75.6	72.1		45.4	52.3	—	34.9	30.6	48.1	
Idaho	62.7	70.9	80.7	82.2	78.6	85.3	+	57.0	60.4	61.4	59.1	49.8	61.2	
Iowa	56.1	64.2	63.2	63.8	66.5	74.7	+	73.6	72.9	67.9	70.0	67.3	75.1	
Kansas	—	—	—	73.9	83.1	86.5	+	—	—	—	65.0	71.6	70.2	
Kentucky	—	81.6	—	—	87.1	88.7	+	—	65.7	—	—	61.2	77.8	+
Maine	67.8	72.8	80.8	78.6	81.5	83.5	+	75.9	79.4	82.5	78.7	72.1	74.1	
Massachusetts	76.4	81.9	76.9	78.7	82.0	82.6	+	85.5	83.8	78.5	74.2	78.3	78.0	+
Michigan	57.1	61.6	65.5	66.6	68.8	71.1	+	37.7	38.8	34.9	28.2	33.1	41.7	
Minnesota	68.9	74.4	—	—	79.3	81.7	+	74.5	66.9	—	—	67.4	66.9	
Mississippi	—	—	—	58.9	65.4	77.4	+	—	—	—	59.2	58.0	73.7	+
Missouri	80.7	87.6	81.7	83.8	87.2	85.9		80.5	82.0	78.9	80.6	83.0	77.8	
Montana	82.8	86.1	81.9	85.4	88.5	82.7		49.2	55.1	55.9	56.8	53.7	62.8	+
Nebraska	61.6	64.7	72.4	71.8	82.1	78.3	+	61.1	60.8	67.5	71.5	69.2	68.8	+
New Hampshire	53.9	62.0	68.0	74.2	73.6	83.6	+	79.0	77.1	80.7	76.0	76.1	73.6	
New Jersey	81.6	—	—	—	92.5	91.5	+	80.9	—	—	—	87.0	83.2	
New York	—	70.2	70.3	—	79.9	86.4	+	—	67.0	64.5	—	67.7	67.9	
North Carolina	—	—	87.2	87.3	89.8	88.8		—	—	72.5	74.0	71.4	77.8	
North Dakota	61.6	65.8	73.1	68.8	78.7	78.3	+	30.8	36.4	37.6	36.4	41.3	45.8	+

	Physical Education							Health Services						
State	2000	2002	2004	2006	2008	2010	Trend	2000	2002	2004	2006	2008	2010	Trend
Ohio	67.7	—	—	—	84.8	82.4	+	68.8	—	—	—	67.0	73.2	
Oklahoma	48.6	—	51.3	—	66.7	67.2	+	47.0	—	38.9	—	48.9	51.7	
Oregon	—	—	72.0	76.8	78.0	76.4		—	—	56.5	48.7	42.7	49.5	
Pennsylvania	—	—	87.7	89.4	89.5	92.5		—	—	79.5	81.0	76.3	80.0	
Rhode Island	—	—	—	87.5	91.3	95.6		—	—	—	72.9	75.8	78.3	
South Carolina	—	—	77.2	76.4	78.8	89.0	+	—	—	67.9	64.0	71.5	75.5	+
South Dakota	—	—	—	61.5	72.2	68.6		—	—	—	48.5	48.9	48.0	
Tennessee	65.0	72.9	74.0	75.1	83.1	87.9	+	56.7	66.0	65.5	69.4	78.1	81.1	+
Texas	—	—	—	71.8	77.5	83.2	+	—	—	—	63.5	64.8	74.8	+
Utah	60.2	69.9	75.1	76.9	82.1	85.2	+	46.2	47.1	48.1	41.0	45.2	56.5	
Vermont	—	64.2	—	77.1	67.4	71.4		—	77.2	—	87.8	79.3	81.8	
Virginia	83.5	87.9	—	88.7	93.0	93.4	+	74.0	73.9	—	77.2	86.2	82.0	+
Washington	—	—	64.3	—	77.7	76.1	+	—	—	65.5	—	63.5	69.5	
West Virginia	73.6	—	—	79.3	89.2	89.9	+	74.7	—	—	80.0	78.7	84.6	+
Wisconsin	—	68.7	76.5	—	86.7	83.9	+	—	70.4	69.2	—	71.7	74.2	
Range	47.6–90.1	54.9–91.2	51.1–91.7	54.6–91.1	57.7–93.0	56.1–95.6		30.8–85.5	36.4–83.8	34.9–83.5	28.2–87.8	30.6–87.0	41.7–90.5	
Median	67.7	70.8	74.0	76.8	80.5	83.2		68.2	66.9	67.5	67.7	67.9	73.6	

	Mental Health and Social Services							Nutrition Services						
State	2000	2002	2004	2006	2008	2010	Trend	2000	2002	2004	2006	2008	2010	Trend
Alabama	55.5	60.2	—	59.8	60.0	51.9		26.1	29.9	—	39.2	43.4	36.9	+
Alaska	52.9	56.0	50.8	45.9	55.9	53.4		17.3	19.6	15.8	24.6	28.3	29.7	+
Arizona	—	50.3	55.7	45.9	41.4	48.8	−	—	21.1	22.9	31.7	34.4	35.0	+
Arkansas	39.5	—	53.9	51.3	60.6	64.5	+	14.9	—	20.4	37.0	44.6	50.7	+
Connecticut	—	67.2	69.8	65.6	65.8	70.4		—	13.1	24.1	34.1	28.7	29.9	+
Delaware	56.9	73.5	69.2	74.5	57.9	72.6		16.4	20.9	25.0	37.8	42.8	58.0	+
Florida	—	—	—	51.6	55.5	50.7		—	—	—	30.3	36.6	37.8	+
Georgia	—	55.3	—	51.4	—	53.5		—	29.4	—	33.2	—	39.0	+
Hawaii	50.7	43.7	—	38.3	50.3	57.2		14.2	18.6	—	13.5	30.5	25.1	
Idaho	52.9	51.9	60.2	63.7	58.0	70.9	+	12.9	20.7	20.5	37.2	30.8	45.0	+

	Mental Health and Social Services							Nutrition Services						
State	2000	2002	2004	2006	2008	2010	Trend	2000	2002	2004	2006	2008	2010	Trend
Iowa	47.7	48.1	51.9	44.7	45.1	52.0		16.6	21.4	19.8	39.0	35.5	42.4	+
Kansas	—	—	—	43.4	51.9	53.2	+	—	—	—	46.2	49.8	49.2	
Kentucky	—	55.3	—	—	60.2	63.9		—	25.3	—	—	39.8	50.9	+
Maine	56.0	64.4	64.4	66.7	67.7	73.5	+	19.1	25.6	31.1	43.9	46.7	46.3	+
Massachusetts	78.9	79.4	69.5	66.7	67.8	70.7	−	28.6	29.8	27.4	43.7	44.1	42.5	+
Michigan	50.8	44.9	50.2	44.2	51.2	56.6		15.1	13.7	23.3	31.3	38.3	37.8	+
Minnesota	62.0	66.3	—	—	69.9	67.3		22.4	21.0	—	—	37.5	34.2	
Mississippi	—	—	—	53.3	53.9	62.7		—	—	—	42.9	38.0	60.2	+
Missouri	57.5	59.0	58.4	59.3	62.6	64.6	+	24.9	26.5	26.9	41.2	47.5	47.6	+
Montana	51.3	52.9	58.7	64.6	61.1	68.7	+	18.2	26.1	28.4	39.4	42.1	36.3	+
Nebraska	36.0	40.7	43.6	51.0	52.4	50.5	+	13.9	18.6	18.4	37.1	38.5	37.2	+
New Hampshire	63.8	63.8	72.1	73.8	67.1	69.0		23.6	21.1	30.0	49.4	43.9	44.4	+
New Jersey	61.8	—	—	—	74.5	75.7	+	11.8	—	—	—	30.8	36.8	+
New York	—	68.3	67.3	—	75.7	74.2	+	—	22.1	21.9	—	44.6	45.2	+
North Carolina	—	—	66.5	57.2	58.0	64.2		—	—	24.9	37.9	32.0	37.9	+
North Dakota	49.2	57.1	59.8	52.5	62.7	62.8	+	23.9	31.5	35.0	45.6	52.0	53.9	+
Ohio	51.7	—	—	—	62.1	66.8	+	11.4	—	—	—	32.4	41.0	+
Oklahoma	51.6	—	39.5	—	49.2	54.3		29.1	—	26.3	—	45.2	44.7	+
Oregon	—	—	60.7	59.1	60.6	58.5		—	—	16.8	30.6	21.6	30.2	+
Pennsylvania	—	—	61.0	53.7	57.5	62.2		—	—	20.3	42.6	45.6	37.9	+
Rhode Island	—	—	—	63.7	72.9	70.9		—	—	—	26.5	36.9	43.5	+
South Carolina	—	—	53.5	46.5	49.2	59.6		—	—	23.4	31.2	33.8	38.9	+
South Dakota	—	—	—	40.1	47.6	40.2		—	—	—	40.1	47.4	36.3	
Tennessee	54.0	61.2	60.5	57.3	65.2	74.0	+	23.4	35.0	31.2	39.1	57.7	62.7	+
Texas	—	—	—	40.8	52.4	51.9	+	—	—	—	28.4	36.6	43.9	+
Utah	55.9	60.5	67.7	54.9	64.1	58.7		8.4	9.8	11.6	20.0	27.1	26.4	+
Vermont	—	74.2	—	82.4	76.1	81.0		—	32.5	—	48.1	50.9	51.4	+
Virginia	50.3	53.5	—	56.7	67.7	67.5	+	15.8	20.4	—	31.7	43.9	40.5	+
Washington	—	—	62.8	—	64.9	67.7		—	—	18.0	—	32.1	28.6	+
West Virginia	58.2	—	—	67.3	72.0	64.7	+	25.3	—	—	40.2	50.5	52.3	+
Wisconsin	—	64.1	62.6	—	69.7	68.6	+	—	17.0	24.6	—	37.8	41.3	+

	Mental Health and Social Services							Nutrition Services						
State	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**Trend**	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**Trend**
Range	36.0–78.9	40.7–79.4	39.5–72.1	38.3–82.4	41.4–76.1	40.2–81.0		8.4–29.1	9.8–35.0	11.6–35.0	13.4–49.4	21.6–57.7	25.1–62.7	
Median	52.9	59.0	60.5	54.9	60.6	64.2		17.3	21.1	23.4	37.8	38.4	41.0	

—, data not available for that year; +, significant linear increase; −, significant linear decrease.